Golden Life™

Vitacal Forte®

Increasing bone density & growth

30 Tablets

Beta carotene

Vitamin A is necessary for cells to differentiate normally, normal skeletal growth and bone remodeling process. Osteoblasts and osteoclasts have receptors for retinoic acid. In contrast, too much vitamin A can cause bone loss and increases the risk of hip fracture. The animal source supplements (retinols) may cause toxicity but B carotene does not.

Boron

Boron appears to be important in calcium metabolism, and can affect the composition, structure and strength of bone. It may also influence the metabolism of Calcium, magnesium and vitamin D. Some studies suggested that boron is a safe and effective treatment for some forms of arthritis. The initial evidence was that boron supplementation alleviated osteoarthritic pain and discomfort.

Copper

Copper is required for the maintenance of healthy bone tissue. This mineral is also involved in the formation of the bone framework structure contributing to the organic component of the osseous matrix. It functions in lysil oxidase, an enzyme essential for cross linking of collagen fibrils.

Contraindications

No contraindications have been reported to date.

Pregnancy and Lactation

Pregnant or lactating women should consult a physician before using.

Interaction

No interaction with other medicinal products has been reported to date.

Adverse Effects

No adverse effects have been reported to date.

Supplement Facts		
Composition per tablet		**RDA%**
Betacarotene	1 mg	*
Vitamin D3	400 IU	67
Vitamin K1	50 mcg	55
Boron	1 mg	*
Ca (Calcium carbonate)	600 mg	60
Cu (Copper gluconate)	1 mg	110
Mg (Magnesium oxide)	50 mg	15
Mn (Manganese picolinate)	5 mg	278
Zn (Zinc gluconate)	10 mg	125

*Recommended daily allowance (RDA) not Stablished.

Presentation

30 tablets

Administration

Take one tablet daily with meal.

Marketing Authorization Holder Darman Yab Darou
Under license of Vitex Pharmaceuticals pty Ltd (Golden Life) Australia

References:
- L-Kathleen Mahan, **Krause's food and the nutrition care process,** 2012-Chapter3
- Linus Pauling Institute, Oregon state university, Micronutrient information center
http://lpi.oregonstate.edu/mic

Zinc

Zinc has a stimulatory effect on bone formation and mineralization. Hydroxyapatite crystals also contain zinc along with other transition metals. Zinc deficiency decreases bone weight and results in a retardation of bone growth, development, and maintenance of bone health. It decreases bone resorption and stimulates alkaline phosphatase (ALP) activity. Zinc functions as a metal component of alkaline phosphatase. Alkaline phosphatase structure incorporates 4 zinc atoms per molecule, 2 of which are essential for enzyme activity. Zinc may induce the increase in alkaline phosphatase-related DNA synthesis and, as a result, stimulate bone growth. Zinc demonstrates stimulating cell proliferation and differentiation, as well as protein synthesis in osteoblsatic cells, while at the same time inhibits osteoclast differentiation. Zinc also stimulates collagen synthesis needed for bone matrix formation. Studies have also shown that zinc levels are positively correlated with Insulin-like growth factor (IGF-1). The evidence suggests that zinc stimulates the release of IGF-1. In fact, the impaired growth and poor bone health associated with zinc deficiency is believed to be due to low levels of circulating IGF-1 that leads to loss of calcium from bones and increased risk of osteoporosis and bone fractures.

Magnesium

About 60% of total Mg is stored in the bone either on the surface of hydroxyapatite or in the hydration shell around the crystal which comprises about 1% of bone mineral. It influences both bone matrix and bone mineral metabolism. As the magnesium content of bone mineral decreases, apatite crystals of bone become larger and more brittle. Magnesium deficiency contributes to osteoporosis directly by acting on crystal formation and bone cells and also result in low serum calcium levels indirectly by impacting on the secretion and the activity of parathyroid hormone. Controlling and maintaining magnesium homeostasis represents a helpful intervention to maintain bone integrity. A study of over 900 elderly men and women found that higher dietary magnesium intakes were associated with increased BMD at the hip in both men and women.

Manganese

This mineral is involved in the formation of the bone framework structure contributing to the organic component of the osseous matrix. It is the preferred cofactor of enzymes called glycosyl transferases; these enzymes are required for the synthesis of proteoglycans that are needed for the formation of healthy cartilage and bone.

Vitamin K

In the past decade it has become evident that vitamin K can improve bone health. The human intervention studies have demonstrated that vitamin K can not only increase bone mineral density in osteoporotic people but also actually reduces fracture rates. Several mechanisms are suggested by which vitamin K can modulate bone metabolism. Vitamin K is the essential cofactor for the carboxylation of glutamate to gamma-carboxyglutamic acid (Gla), and activates the vitamin K–dependent Gla-containing proteins which associated with the coming together of cartilage and bone. Adequate amounts of vitamin K is also needed in order to activate osteocalcin that is responsible for binding calcium ions to the matrix of bone. Studies showed that bone fractures in both women and men are reduced in correlation with higher levels of vitamin K. A deficiency of Vitamin K is associated with increased risk of hip fractures in the elderly and low bone mineral density (BMD) caused by high levels of under-carboxylated osteocalcin.

VitacalForte®

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The health and strength of our bones rely on a balanced diet and a steady stream of nutrients, most importantly, calcium and Vitamin D. But some other nutrients like zinc, Magnesium, Manganese, Copper, Boron and Vitamin K are also vital for bone formation and mineralization.

Globally it is estimated that 1 in 3 women and 1 in 12 men over 50 suffer from osteoporosis. Asian women have lower bone mass.
Every 3 seconds, an osteoporotic fracture and every 22 seconds, a vertebral fracture occurs.

Indications

- **Promotes bone growth and mineralization**
- **Increases bone density**
- **Helps prevent osteoporosis and bone loss.**

Ingredients

Calcium

Calcium is a major constituent of bones and teeth. Some 99% of calcium is found in the skeleton. The mineral component of bone consists mainly of hydroxyapatite [Ca10(PO4)6(OH)2] crystals, which contain large amounts of calcium, phosphorus, and oxygen. Bone mineral density (BMD) increases during the first three decades of life, reaching its peak at about the age of 30. After this age, BMD declines, and the decline increase more rapidly in women after the menopause. However BMD also declines in older men. Circulating calcium concentrations are tightly controlled by the parathyroid hormone (PTH) and vitamin D at the expense of the skeleton when dietary calcium intakes are inadequate. The skeleton is a reserve of calcium drawn upon to maintain normal serum calcium in case of inadequate dietary calcium. Thus, calcium sufficiency is required to maximize the attainment of peak bone mass during growth and to prevent the progressive demineralization of bones later in life, which leads to osteoporosis, bone fragility, and an increased risk of fractures. The spine, hips, ribs, and wrists are common areas of bone fractures. Meta-analyses report that calcium supplementation reduces bone loss by 0.5-1.2% and the risk of fracture of all types by at least 10% in older people.

- Data from observational studies and randomized controlled trials support calcium supplementation in reducing the risk of high blood pressure and preeclampsia in pregnant women. The World Health Organization advises that all pregnant women in areas of low calcium intake (i.e.,low-income countries with intakes around 300-600 mg/day) be given supplemental calcium starting in the 20th week of pregnancy.

- Current available data suggest that adequate calcium intakes may play a role in body weight regulation and have therapeutic benefits in the management of moderate-to-severe premenstrual symptoms.

Vitamin D3

Vitamin D is a fat-soluble vitamin that regulates calcium and phosphorus homeostasis and bone health along with parathyroid hormone and calcitonin. While it can also be obtained from dietary sources or supplements, vitamin D3 (cholecalciferol) is synthesized in the human skin from 7-dehydrocholesterol upon exposure to ultraviolet-B (UVB) radiation from sunlight. The body needs vitamin D in its active form (1,25-dihydroxyvitamin D; calcitriol) for effectively absorb dietary calcium. Increased circulating 1,25-dihydroxyvitamin D in turn stimulates increased intestinal absorption of both calcium and phosphorus, limits the urinary excretion of calcium by increasing its reabsorption in the kidneys and also mobilizing calcium from bone when there is insufficient dietary calcium.